(K) ~~act~~ Mr. & Mrs. James Brown
(602) 867-8457 AZ

9309163585

(L) ~~act~~ Mr. & Mrs. Riha
(602) 974-4001
AZ

9309166CC3583

(M2) ~~act~~ Mr. & Mrs. Sunby
(602) 860-2709
AZ

9309166CC3587

220

Lenox TH

CONSUMER PRODUCT INCIDENT REPORT

TH 9-21

1. NAME OF RESPONDENT	2. TELEPHONE NO. (Home) (Work)
Phifer Wire Prod	
3. STREET ADDRESS	**4. CITY STATE ZIP CODE**
	Tuscaloosa, AL

5. DESCRIBE ACCIDENT SITUATION OR HAZARD, INCLUDING DATA ON INJURIES. (Use second page if necessary.)

Complainants advise that fiberglass window sun screen is emitting fibre off gas.

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6. DATE OF INCIDENT(S)	7. IF INJURY OR NEAR MISS, OBTAIN	8. IF VICTIM DIFFERENT FROM RESPONDENT, PROVIDE
	AGE _____ SEX _____ AND DESCRIBE INJURY _____	NAME _____ RELATIONSHIP _____

9. DESCRIPTION OF PRODUCT	10. BRAND NAME
Fiberglass Window Sun Screen	
11. MANUFACTURER/DISTRIBUTOR NAME, ADDRESS & PHONE	**12. MODEL, SERIAL NO.'S**
Phifer Wire Prod Tuscaloosa, AL	**13. DEALER'S NAME, ADDRESS & PHONE**

14. WAS THE PRODUCT DAMAGED, REPAIRED OR MODIFIED?	15. PRODUCT PURCHASED NEW _____ USED _____
YES _____ NO _____ IF YES, BEFORE OR AFTER THE INCIDENT? _____ Describe _____	DATE PURCHASED _____ AGE _____ 16. DOES PRODUCT HAVE WARNING LABELS? IF SO, NOTE: _____

17. HAVE YOU CONTACTED THE MANUFACTURER?	18. IS THE PRODUCT STILL AVAILABLE?	19. MAY WE USE YOUR NAME WITH THIS REPORT?
YES _____ NO _____ IF NOT, DO YOU PLAN TO CONTACT THEM? YES _____ NO _____ OTHER _____	YES _____ NO _____ IF NOT, ITS DISPOSITION _____	YES _____ NO _____

FOR ADMINISTRATION USE

20. DATE RECEIVED	21. RECEIVED BY (Name & Office)	22. DOCUMENT NO.
6/10/93	J. Hayes	X3 97545(A-M)
23. FOLLOW-UP ACTION	SEP 17 1993	**24. PRODUCT CODE(S)**
25. DISTRIBUTION	**26. ENDORSER'S NAME & TITLE**	

CPSC FORM 175 (9/89)

221

A

Diane Mazze
281 Fox Run Rd
Exton, PA 19341

930916CCC1593

B

William J. Lenkin, Esq.
8 Bridge Street
Northampton, MA 01060
(413) 586-6622
Re: Diane + Walter Geryk

930916CCC1594

C

Mrs. Sandra Leary
9 Plantation Rd
Hatfield, MA 01038
phone # unknown

930916CCC1595

D

Claudia Fullerton - Donnelly Hadden
6859 Tanglewood Esquire
Waterford, MI 48327 (313) 741-505

930916CCC2595

E

Lisa Kelly
16600 Sun Valley Dr.
Clarkston, MI 48348
1-313-391-4434

930916CCC2592

222

Kevin & Carolee Chase

F 2 6881 Vail Court

Clarkston, MI 48348

(313) 391-3972 (home) (313) 643-9444 (wk)

930916CCC2589

Mr. & Mrs. Joe Golarz

G 2 (313) 391-1675 MI

930916CCC2588

Mrs. Fulerton

H) [redacted] (313) 681-8585 MI

930916CCC2587

I : ~~Gertrude~~ Kamuda

8620 E. Bellview #1115

~~930916CCC~~ Scottsdale, AZ 85257

~~(602) 970-2042~~

J et ~~Mr. & Mrs.~~ Tom King

(602) 391-~~9106~~ AZ

~~930916CCC~~ 2586

223

K act Mr. & Mrs. James Brown
(602) 867-8457 AZ

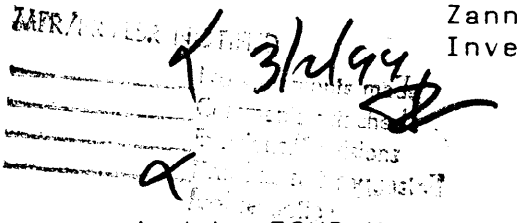
L act Mr. & Mrs. Riha
(602) 974-4001
AZ

2 act Mr. & Mrs. Sunby
(602) 860-4709
AZ

PHIFER WIRE
CA 930075

Suntrol Window Products, Inc.
3767 E. Broadway Road, # 6
Phoenix, Arizona 85040

June 15, 1993
Zannie E. Weaver
Investigator



SUMMARY OF FINDINGS:

This limited inspection was requested by FOWR Management as a follow-up to an STI from CECA, project # 32560 - issuance # 930603WR04000. CECA requested information on a window screen product manufactured by Phifer Wire Products, Tuscaloosa, Alabama, see exhibit # 19.

Suntrol uses the Phifer household window screen wiring product known as SUN SCREEN in the window screens which they assemble and distribute through-out the state of Arizona. The State Government of Arizona has received several dozen inquiries from consumers about this product. The product deteriorates over time, changes its appearance and releases odors which may cause respiratory irritation. State officials identified Suntrol as the local distributor for this product. Please see my June report covering documentation received from state officials for more information about their complaints.

This inspection revealed that the SUN SCREEN window screen product is manufactured by Phifer Wire Products, Tuscaloosa, Alabama. Both Suntrol and Phifer decided that production lots of this product was/is defective in that it could not stand up to the Arizona sun and the poly vinyl chloride (PVC) begins deteriorating. This deterioration causes the product to change color (turns black) and results in chemical odors (off-gassing), see exhibit # 3.

Both Phifer and Suntrol prepared notices to customers about the defective SUN SCREEN window product, see exhibits # 4 & 5.

There are differences of opinion between Suntrol and Phifer as regards the health effects of the deteriorating product. Phifer does not feel the off-gassing is dangerous; however, Suntrol believes it can result in repiratory illnesses.

Additional information was collected from management prior to concluding this inspection.

STRUCTURE AND TYPE OF BUSINESS

Suntrol is an Arizona corporation based in Phoenix. The firm markets window wire screen products with most of their business confined to the state of Arizona. According to the firm's Field Supervisor, most of their work is performed on residential homes and apartments (over 70%).

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COMPLIANCE HISTORY

This is the initial inspection of the referenced firm.

INDIVIDUAL RESPONSIBILITY AND PERSONS INTERVIEWED

Prior to conducting this inspection I called the firm and spoke with Mr. John Edwards, President. I stated that CPSC was collecting information on the Phifer SUN SCREEN window product. He said that they had carried the product and do have information about the defective material. He agreed to provide me with this information on 6-15-93.

Upon entering the firm I identified myself and asked to see the Mr. John Edwards. I was told that Mr. Edwards was out sick. He had a temperature of 105 degrees Fahrenheit and would not be available to attend this meeting. I was directed to the firm's Field Supervisor, Mr. Bruce McAdam.

I presented my credentials, issued a notice of inspection and explained the purpose of this inspection. Mr. McAdam was the most responsible person at the firm. He answered most of my questions and supplied company records.

During 6-16-93 I spoke with Mr. John Edwards by telephone. He supplied me with additional information and faxed several documents to my attention, see exhibits # 4 & 5.

PRODUCT EXAMINATION

The Phifer window screen product known as SUN SCREEN is a window screen used on doors and windows which Phifer claims reduces up to 70% of the sun's heat and glare before the sun's rays enter the house. I obtained a copy of a Phifer brochure which discusses this product. It is attached as exhibit # 2.

This consumer product is a polymer coated fiberglass screening material. It was sold in several colors including gold, bronze, silver gray and charcoal.

faxed, Edwards.

Suntrol acquires the screen in bulk quantity from Phifer and assembles the product in the form of screens which are installed on household windows and doors. Mr. McAdam supplied me with a swatch of the Sun Screen material during this inspection, see exhibit # 3.

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COMPLAINT FILE

Suntrol and Phifer began experiencing problems with the Phifer Sun Screen during 1991.

Mr. McAdam and Mr. Edwards told me that several of their employees (including Mr. Edwards) became sick (respiratory illnesses) due to the off-gassing of chemicals from the deteriorating product which was stored in their warehouse. During November 1991 they had the product tested by an independent lab (Health Effects Group, Tucson, AZ) which found the presence of low levels of volatile compounds including carbon ketones, aliphatic hydrocarbons, aldehydes, trimethylsilanol and benzene, see exhibit # 14

The firm's management indicated that OSHA advised them to have their employee's wear mask when working with the deteriorating product. They passed this information on to Phifer in a letter dated Oct. 16, 1992, see exhibit # 10.

Suntrol has files covering dozens of written complaints from consumers about the fact that the Sun Screen product tends to deteriorate. Copies of a few of these letters include reports of adverse health effects, see exhibit # 13.

The firm also received many telephone calls complaining about the health hazards. Consumers reported suffering nausea, eye and nose irritation and headaches.

Also attached as exhibit # 12 is a list of names/phone numbers of people who have suffered illnesses or have information on the health effects of the window screen product. Most of the phone numbers belong to people located in Phoenix. The people who live outside of Arizona can be identified by the area code which is printed in front of their telephone number.

Suntrol management indicated that some of the health related complaints involve homes were the screens were installed to the interior of the windows, see exhibit # 4. Mr. Edwards mentioned that some of the complaining consumers suffered respiratory illnesses when they opened their windows to receive fresh air. Their health problems would decrease when they closed their windows.

RECALL PROGRAM

Suntrol initiated a recall program with homeowners during 1993. Mr. McAdam said they canvased homes where the product was installed, examined the window screens for defective units and notified Phifer of each property where deteriorating screens were found.

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Suntrol also provided a written notice/recall letter to homeowners. This letter discusses the deteriorating aspect of the product and also mentions the possiblity of illnesses. Part of the letter states:

> "Some homeowners remove their Sunscreens for winter storage, we recommend that you not store your Sunscreens in an enclosed area if you believe that they might be defective. Some homeowners have complained of respiratory discomfort after being exposed to the defective screen in an enclosed area. Most of these complaints have come from homeowners who have installed screens to the interior of their windows...."

A copy of the Suntrol recall letter is attached as exhibit # 4.

Phifer also came out with a notice/recall letter to consumers. However, their letter does not mention the possiblity of illnesses, see exhibit # 5.

VIOLATIVE CONDITIONS

The Phifer SUN SCREEN window product may present a Section 15 product hazard. This polymer coated fiberglass screening material breaks down over a period of time due to sun rays and heat. The degradation of the screening material is characterized by changes in physical appearance and by the presence of unpleasant and irritating odors.

Laboratory examinations by different organizations of the degrading screening material found low levels of various volatile organic compounds coming off the product, see exhibits # 14 & 15. These compounds include ketones, amines, benzene, and phthalates. One of the reports said it is well recognized that compounds such as these can be strong irritants to the nose, eyes, upper resiratory tract, and mucous membranes.

Mr. McAdam supplied me with a swatch of the defective material, see exhibit # 3.

LABORATORY REPORTS

Copies of correspondence and laboratory reports about the defective Phifer SUN SCREEN product were received from Mr. McAdam. A listing of these records follow:

1. Health Effects Group, Inc., Tucson, AZ (Dr. Crutchfied)

This report is dated November 25, 1991 and involved the study of volatile emissions from the window screen material, exhibit # 14.

They found low levels of several compounds including:

a) pthalates,
b) four to seven carbon ketones (with methy ethyl ketone MEK and methyl vinyl ketone (MVK, 3-buten-2-one) being the most abundant
c) aliphatic hydrocarbons,
d) aldehyde,
e) trimethylsilanol and
f) benzene.

2. UAB School of Public Health, Birmingham, AL (Dr. Meeks)

This report is dated February 21, 1992 and covered an assessment of the source of odors associated with the polymer coated fiberglass window screen product. They found that the release of compounds from the product increases with weathering. The weathered samples produced peak heights 10 - 200 times larger than non-weathered samples. They found low levels of several compounds released by the window screen product including ketones, amines, and low molecular weight organic acids. Dr. Meeks reported that "..., it is well recognized that compounds such as these (i.e. ketones, amines, and weak organic acides) can be strong irritants to the nose, eyes, and upper respiratory track, and mucous membranes." (exhibit # 15)

3. 1-15-92 Letter from Dr. Meeks to Phifer:

Dr. Meeks reported that the off-gassing compounds which come off the screening material appear to be oxidation products of monomer material coated onto the fiberglass screen, various phthalates associated with plasticizers used in the manufacture of the polymer, and pigment used in coloring the screen material, exhibit # 16.

4. ENVIROCOMP, Westfield, MA

This report is dated October 9, 1992 and covers an indoor air quality investigation in the Geryk's resident, Hatfield, MA. The purpose of the assessment was to attempt to identify any specific chemicals and their concentrations associated with coated fibrous glass screens (window screens). The owner had reported that objectional odors were being released by the window screens. They found low levels of unidentified hydrocarbons, low levels of xylene, toluene, ehhanol, methyl chloroform, and 2-methylpropane. ENVIROCOMP concluded that it was not possible during this brief assessment to identify specific chemical compounds to be directly related to the coating on the screens, exhibit # 17.

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4. Letter from A & E Consulting Services, Saginaw, MI (Dr. Wagner)

Dr. Wagner conducted a toxicological review and wrote Mrs. Golarz that it is doubtful that there is a direct linkage between Ms. Chronic Fatigue Immune Dysfuntion and the apparent subchronic exposure to any of the compounds contained in or emmitted from the screening material, exhibit # 18.

DISCUSSION WITH MANAGEMENT

This information was obtained from Mr. McAdam and Mr. Edwards. Mr. McAdam that that Suntrol began marketing the Phifer SUN SCREEN product during 1976. He said that about 90% of their sales are to homeowners.

Management indicated that Phifer Wire Products feels they suffered a manufacturing quality failure of their SUN SCREEN solar window product during their 1988 and 1989 productions. The product would simply not hold up in the Arizona sun. The material would deteriorate and give off strong and irritating odors.

According to Mc. McAdam, the window screen would begin deteriorating within one year. The colored paint would flake off with the wiring ~~turning black.~~ The PVC material would then deteriorate and fall off the fiberglass components.

Mr. McAdam and Mr. Edwards said that they feel the defective material is not limited to the 1988 and 1989 production lots. It is their observation that they have noticed defective window screens in lots produced as late at 1991.

Suntrol corresponded with Phifer about the defective SUN SCREEN and attempted to have the product recalled and the replacement warranty honored, see exhibits # 6 - 11. Mr. McAdam said that Phifer has often refused to replace the defective window screens at many homes.

Mr. Edwards told me that they sold/installed about 100,000 square feet of this window screening material each year. He estimated that about 500,000 sq. ft. of these potentially defective window screens are still on household windows in Arizona. Over 70% of the Sun Screens ended up being installed on residential homes and apartments.

Suntrol and Phifer began replacing the defective Sun Screens. Mr. McAdam said they would frequently replace 10,000 sq. ft. of the product on a weekly basis.

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During 1993 Suntrol and Phifer came to blows over this replacement program and over the existence of any health hazards involving the product. They eventually filed racketeering lawsuits against each other.

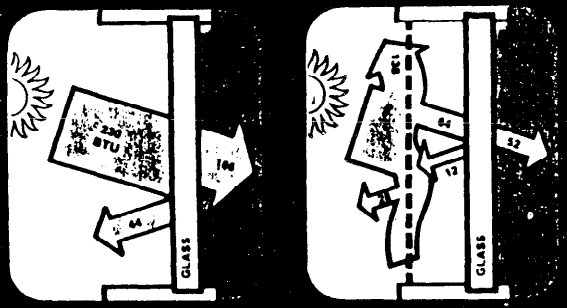
Copies of these lawsuit filings and other documents were made a part of my June report covering my contacts with Arizona state officials.

This inspection was terminated after I obtained the above mentioned information.

EXHIBITS

1. NOTICE OF INSPECTION
2. PHIFER SUN SCREEN BROCHURE
3. SWATCH OF DEFECTIVE SUN SCREEN MATERIAL
4. SUNTROL NOTICE/RECALL LETTER
5. PHIFER NOTICE/RECALL LETTER
6. PHIFER LETTER DATED 2-20-92
7. PHIFER LETTER DATED 6-2-92
8. SUNTROL LETTER DATED 10-8-92
9. PHIFER FAX DATED 10-15-92
10. SUNTROL LETTER DATED 10-16-92
11. PHIFER LETTER DATED 2-23-93
12. HEALTH EFFECTS NAME LIST
13. CONSUMER COMPLAINTS
14. HEALTH EFFECTS LAB REPORT
15. UAB LAB REPORT
16. DR. MEEK LETTER DATED 1-15-92
17. ENVIRONCOMP REPORT DATED 10-9-92
18. A & E CONSULTING SERVICES LETTER
19. ASSIGMENT

HOW SOLAR SCREENS WORK



(1) The chart on left shows an unprotected glass at 40° N latitude in mid-summer. As much as 230 BTUs can fall on each square foot of glass.
(2) Right, same window with SunScreen installed. Up to 70% of the sun's heat and glare is reflected, absorbed and dissipated by SunScreen before it strikes the window surface.

BONUS BENEFITS

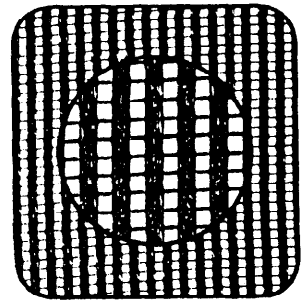
Protects against fading and sun rot
Provides daytime privacy
Lets in soft light and breezes
Reduces glare
Affords full 180° vision inside out

SAVES ENERGY/REDUCES UTILITY BILLS

■ SunScreen instantaneously reduces the amount of solar heat gain by up to 70%. As a result, summertime air conditioning costs may be significantly reduced.

The savings on energy costs alone will usually pay for installation of SunScreen in two summers or less.

UNIQUE PATENTED WEAVE



■ SunScreen is woven from durable vinyl-coated Phifer-glass yarn. After weaving, SunScreen is heat-treated so as to insure a stable and quality product. The unique flat weave greatly reduces the possibility of damage.

BLOCKS THE SUN'S HEAT AND GLARE...

...NOT THE VIEW

COLOR COORDINATE WITH YOUR HOME

SunScreen is available in a variety of earthtones and may be color-coordinated to maintain and enhance the aesthetic values of any exterior.

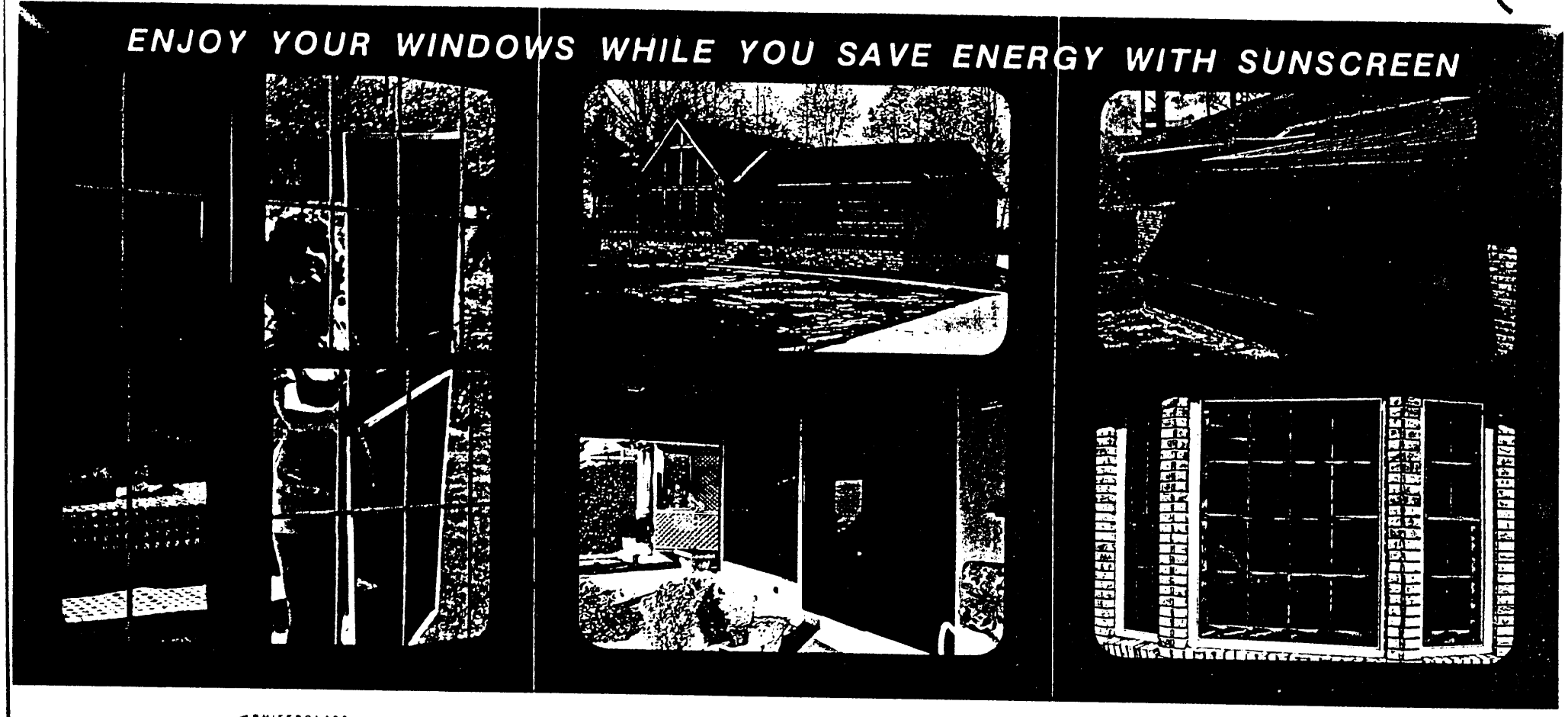
SunScreen is a recommended practice as a solar cooling device and a recommended measure for solar heat gain retardation in the U.S. Department of Energy's Residential Conservation Services (RCS) Program.

SunScreen is manufactured by Phifer Wire Products, Inc., Tuscaloosa, Alabama (Patent No. 4,002,188)

PHIFERGLASS
SUNSCREEN
®ENERGY SAVING SOLAR SCREENING

REPLACES REGULAR SCREENING

ENJOY YOUR WINDOWS WHILE YOU SAVE ENERGY WITH SUNSCREEN



PHIFERGLASS SUNSCREEN
ENERGY SAVING SOLAR SCREENING

■ Protect your windows and sliding glass doors against the sun's hot rays. SunScreen® reduces up to 70% of the sun's heat and glare before it enters your windows.

Improve Air Conditioning Efficiency • Lower Operating Costs

SunScreen® offers *year-round* comfort and economy.

EXTERIOR SHADING FOR WINDOWS/DOORS

■ Unlike films or glass coatings, SunScreen® stops the sun's heat and glare before it hits your windows and sliding glass doors. It's like having a shade tree in front of your window without blocking the view. Exterior shading can be many times more effective than most interior devices.

BLOCKS THE SUN'S HEAT AND GLARE . . . NOT THE VIEW

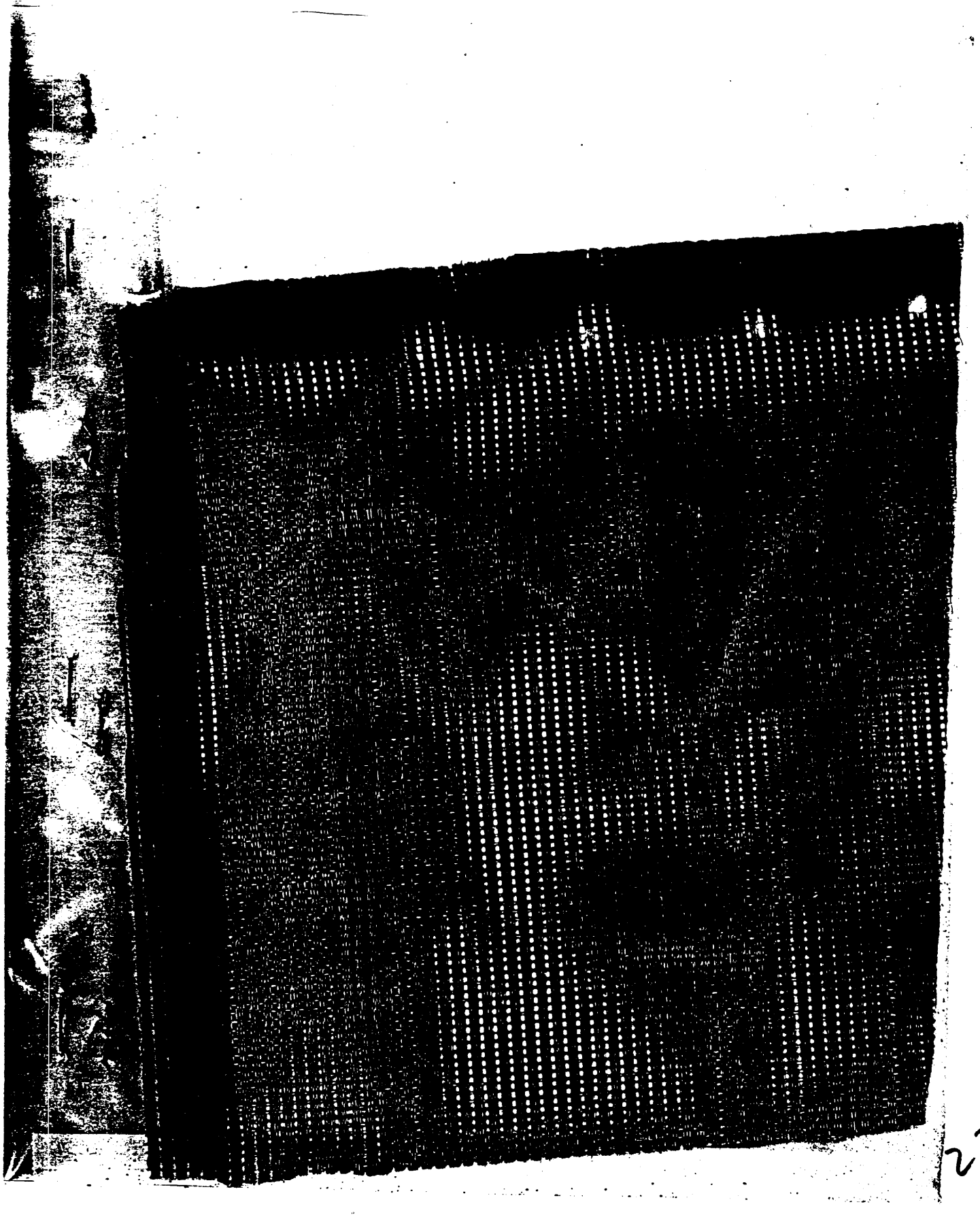
CUSTOM MADE AND INSTALLED

■ SunScreen® solar screens are custom made and installed on your windows for years of carefree enjoyment. SunScreen® installation is available for all types and shapes of windows and doors. Since SunScreen® serves the dual purpose of reducing the sun's heat and blocking even tiny insects, regular insect screens are no longer necessary. Yet the unique open weave construction of SunScreen® still allows soft light and gentle breezes to enter.

E.I.R. EXHIBIT 3

MFR Sunbird

DATE 6-15-93 INSPECTOR [signature]



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E.I.R. EXHIBIT 4
MFR Suntrol
DATE 6-15-93 INSPECTOR

Suntrol, Inc.
3767 East Broadway Road, Suite 6 / Phoenix, Arizona 85040
602 / 437-4431

February 7, 1993

Dear : Homeowner With Sunscreens

If your Sunscreens were installed between January 1988 to present, you may have received a defective product and could be due a free warranty replacement.

The defective Sunscreen was manufactured by Phifer Wire Products between January 1988 through June 1989. Although the defect was corrected in 1989, we may have inadvertently installed defective Sunscreen after that date.

The defective product can be identified by a change in color, the screen gets darker but not necessarily all at the same time. You may see some of your screens turning color while others do not, or they will start to change color on one portion of the screen and the variation will slowly spread across the screen creating a two tone effect. The screen turning color is the first stage of degradation that will eventually result in the poly vinyl chloride (PVC), deteriorating and falling away from the fiberglass yarn, making the Sunscreens appear white. You may also notice a strange chemical odor (off-gassing) associated with the defective products degradation. Some homeowners remove their Sunscreens for winter time storage, we recommend that you not store your Sunscreens in an enclosed area if you believe that they might be defective. Some homeowners have complained of respiratory discomfort after being exposed to the defective screen in an enclosed area. Most of these complaints have come from homeowners who have installed screens to the interior of their windows. Even though most Sunscreens are installed to the exterior and there is very little to be concerned with relative to health effects, Suntrol would like to remove all of the defective product as soon as possible.

We apologize for this inconvenience and would like to assure you that it is our intention to replace all of the defective Sunscreen that we can identify. If you believe that your home might have defective Sunscreen, please complete the enclosed form and mail it to our office, or call Suntrol at 437-4431 for more details.

Sincerely,

John N. Edwards
President, Suntrol Window Products

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PHIFER WIRE PRODUCTS, INC.
P. O. BOX 1700 • TUSCALOOSA ALABAMA 35403-1700 U.S.A.

E.I.R. EXHIBIT 5
MFR SunScreen
DATE 6-15-93 INSPECTOR JHH

Dear Resident:

It is possible Phifer SunScreen® solar screening was installed on your home several years ago. Since that time, you have probably realized substantial savings in your air-conditioning bills due to the sun blocking characteristics of SunScreen. We hope you have been completely satisfied with this fine product.

It has come to our attention that some of the gold, bronze and silver gray SunScreen that was installed during 1988 and 1989 turns black. This is only cosmetic, not functional - the product still screens out heat producing sun rays.

Phifer Wire Products warranties SunScreen for a period of five years and wants to ensure 100% consumer satisfaction. If the gold, bronze or silver gray SunScreen on your windows was installed during 1988 or 1989 and has turned black, please complete and mail the enclosed postage-paid Inspection Request Card. Upon receipt of your card a Phifer Representative will contact you to set up an appointment to inspect your SunScreens. If your SunScreen meets the criteria mentioned above, we will replace your SunScreens.

Sincerely,

PHIFER WIRE PRODUCTS, INC.

Joel Hartig

Joel Hartig
Sales Representative

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PHONE 205/345-2120 • FAX 205/759-4450 • TELEX 261328 (PHIF UR)

E.I.R. EXHIBIT 6
MFR Sinclair
DATE 6-15-93 INSPECTOR JCM

PHIFER WIRE PRODUCTS, INC.
P. O. BOX 1700 • TUSCALOOSA, ALABAMA 35403-1700 U.S.A.

■ CHARLES E. MORGAN
Executive Vice President and Corporate Counsel

February 20, 1992

Mr. Bob Hoff
6890 Sun Valley Drive
Clarkston, Michigan 48348

Dear Mr. Hoff:

It has been exactly three weeks since you and I spoke regarding the odor problems with our fiberglass screens. Immediately after speaking with you, I faxed you a copy of a letter (progress report) dated January 15, 1992 from our toxicologist, Dr. Robert G. Meeks. You had previously received, through attorney Louis Corey, a copy of Dr. Clifton Crutchfield's report dated November 27, 1991. During our conversation, you informed me that you and the Chases no longer employ Mr. Corey and that I should send information directly to you.

I believe I told you that we were expecting a final detailed report from Dr. Meeks that would be more in depth than Dr. Crutchfield's report. I may have also told you that I had met with Dr. Meeks the week before (January 22) at which time he had provided me with a "Supplementary Report" on his "Analysis of vinyl coated fiberglass samples." Due to the technical nature of this Supplementary Report, it is not comprehensible to me. Dr. Meeks offered to wrap it all up with a final narrative report that would be written in terms that a non-scientist could understand. He suggested that I wait until that final report was available and then send it to you along with the Supplementary Report. I called Dr. Meeks three days ago to ask about this final report and he told me that he should have it out in "a week or two." Since I do not know exactly how long that "week or two" will be, and I did not want you to think we had forgotten about you, I decided to go ahead and send you the enclosed copy of Dr. Meeks' Supplementary Report. Dr. Meeks mentioned that he had received a phone call from Carol Chase earlier this month. I do not have Mrs. Chase's address, so I have enclosed an extra copy of this letter and report and would appreciate it if you would pass them along to her.

Although, as previously admitted, I don't really understand the technical findings, the bottom line of Dr. Meeks' message seems to be that we should have no serious concerns regarding toxicity or permanent adverse effects from these odors. I will send you copies of Dr. Meeks' final report as soon as I get it. In the meantime, feel free to call me or Dr. Meeks if you have any questions.

Sincerely yours,

Charles Morgan

Charles Morgan

Enclosures

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FROM MEETING WITH
DR HEEKS AT PWP
22 JAN 92
ALSO PRESENT:
JOHN STUMPFF
CHARLES MORGAN

Supplementary Report
Analysis of vinyl coated fiberglass samples

Introduction

In order to further characterize material believed to be released from vinyl coated screens we installed a 3 ml sample loop on a Hewlett-Packard Headspace sampler interfaced to a Hewlett-Packard 5890 Gas Chromatograph using a Hewlett-Packard 5970 Mass Spectrometer as the detector.

Experimental Conditions

Two studies have been completed with this new configuration, specifically, a temperature study and a series of analyses of vinyl coated screen materials. Conditions for the studies were as follows:

The headspace sampler bath was set at a series of temperatures ranging from 100 to 140 C. Samples were analyzed at 100, 110, 120, 130, and 140 C. Auxiliary flow was set to 1 bar pressure as was the carrier gas. This resulted in a flow of 80 ml/min to the gas chromatograph.

The gas chromatograph was set to a split vent flow of 20 ml/min resulting in a total of 100 ml/min flow. The purge vent was set to 5 ml/min resulting in a 1:20 split ratio. The gas chromatograph was operated at 120 C initially for 7 minutes then ramped to 250 C at 10 C per minute, then programmed to remain at that temperature for 10 minutes. A Hewlett-Packard FFAP 50 meter x 0.2 uM column was installed for these analyses.

The mass spectrometer was programmed to scan from 35 to 450 M/Z.

For the series of vinyl coated samples, the headspace sampler operated at 140 C. Each sample consisted of approximately 24 square inches of material rolled into the headspace sampler vial.

Results

Increasing temperature of the headspace sampler resulted in successively higher amounts of degradation materials to be transferred to the gas chromatograph. Seven peaks were predominant in this series of samples, indicating at least seven separate compounds. There were also several other small peaks with signals too low to provide sufficient qualitative information for characterization.

Three samples of differing materials were analyzed at 140 C. These included the bronze vinyl coated fiberglass from Arizona, the gray vinyl coated material included with the bronze material, and another sample of gray vinyl coated material from a round mailing tube. Each of these samples exhibited similar chromatographic behavior. That is, they all exhibited the same seven peaks as shown on the associated chromatographs.

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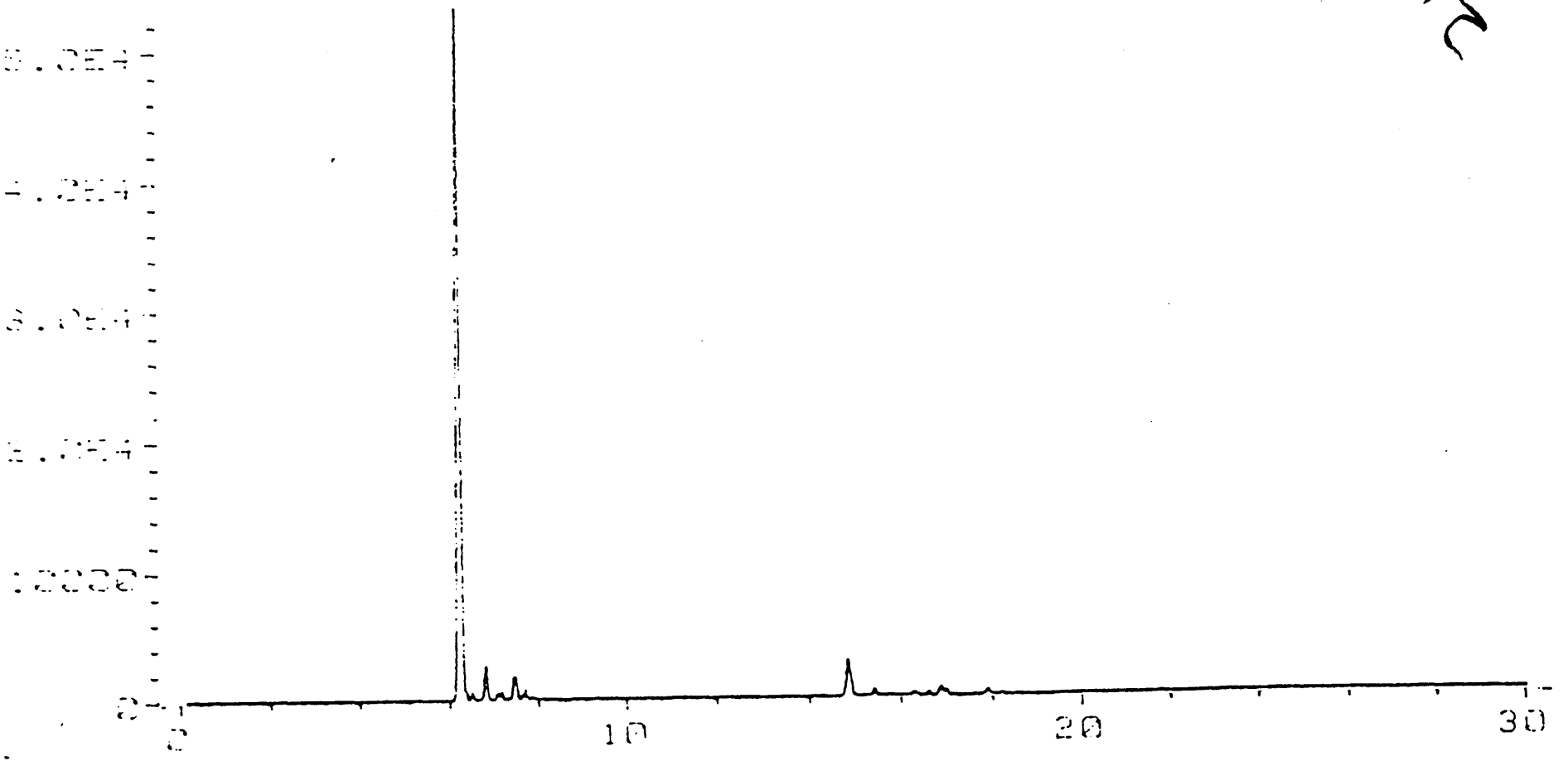
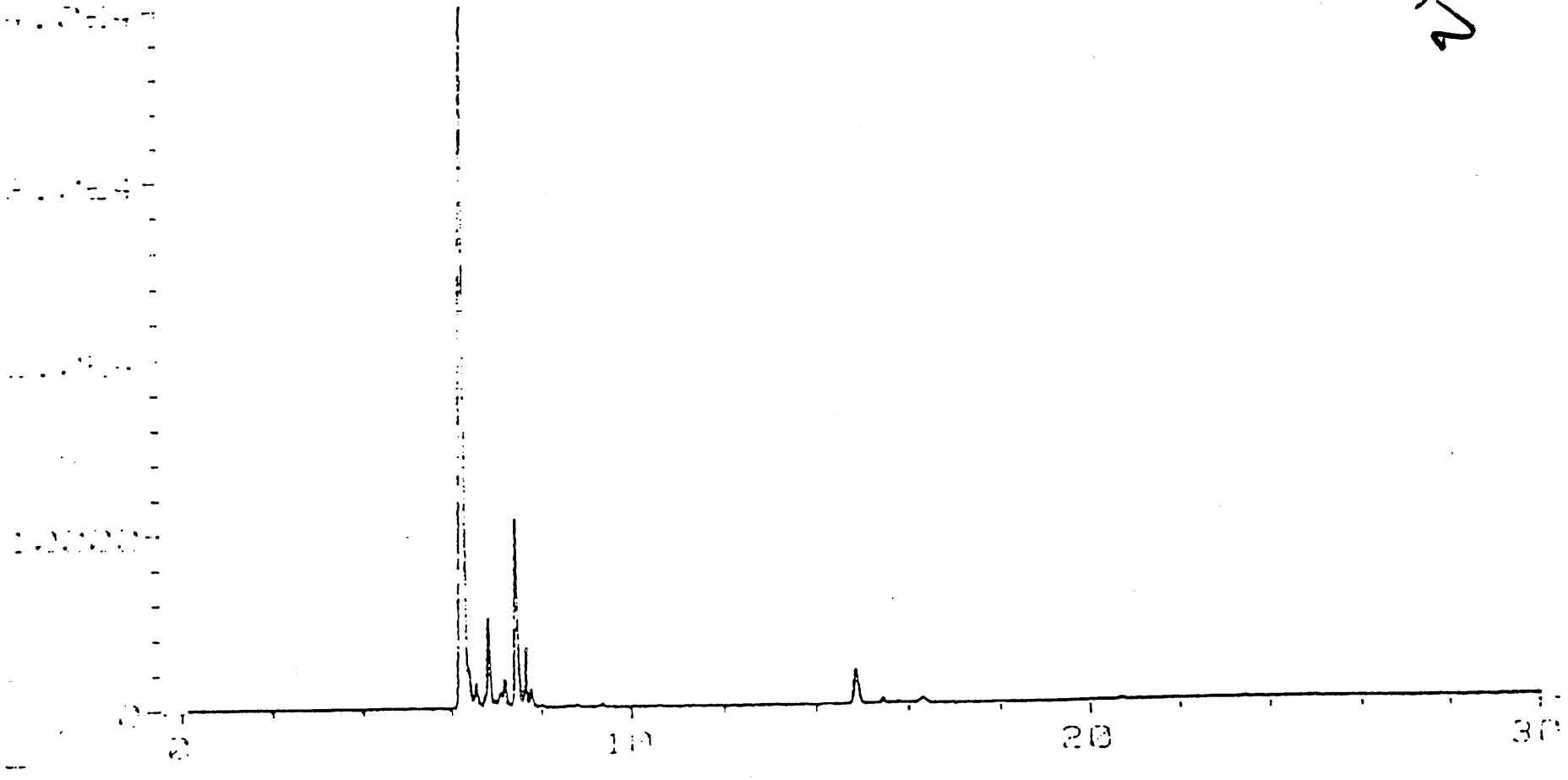
The mass spectra of each of these peaks was matched with NBS standard spectra and the ten best matches were listed for each peak. It can been inferred from this data that these compounds represent oxidation products of the vinyl material and associated plasticizers. The spectral matches for the gray vinyl coated fiberglass are included with this report.

It can be envisioned that different product ratios can be formed depending on environmental conditions. The major product appears to be a small molecular weight ketone, amine or acid formed from oxidative cleavage of HCL from the polyvinylchloride. This can result in the formation of chlorinated polyenes, low molecular weight compounds such as propanes, cyclopropanes and butanes, cyclobutanes, and their associated acids. These compounds typically exhibit high vapor pressures, thus the odors associated with aging of the vinyl coating.

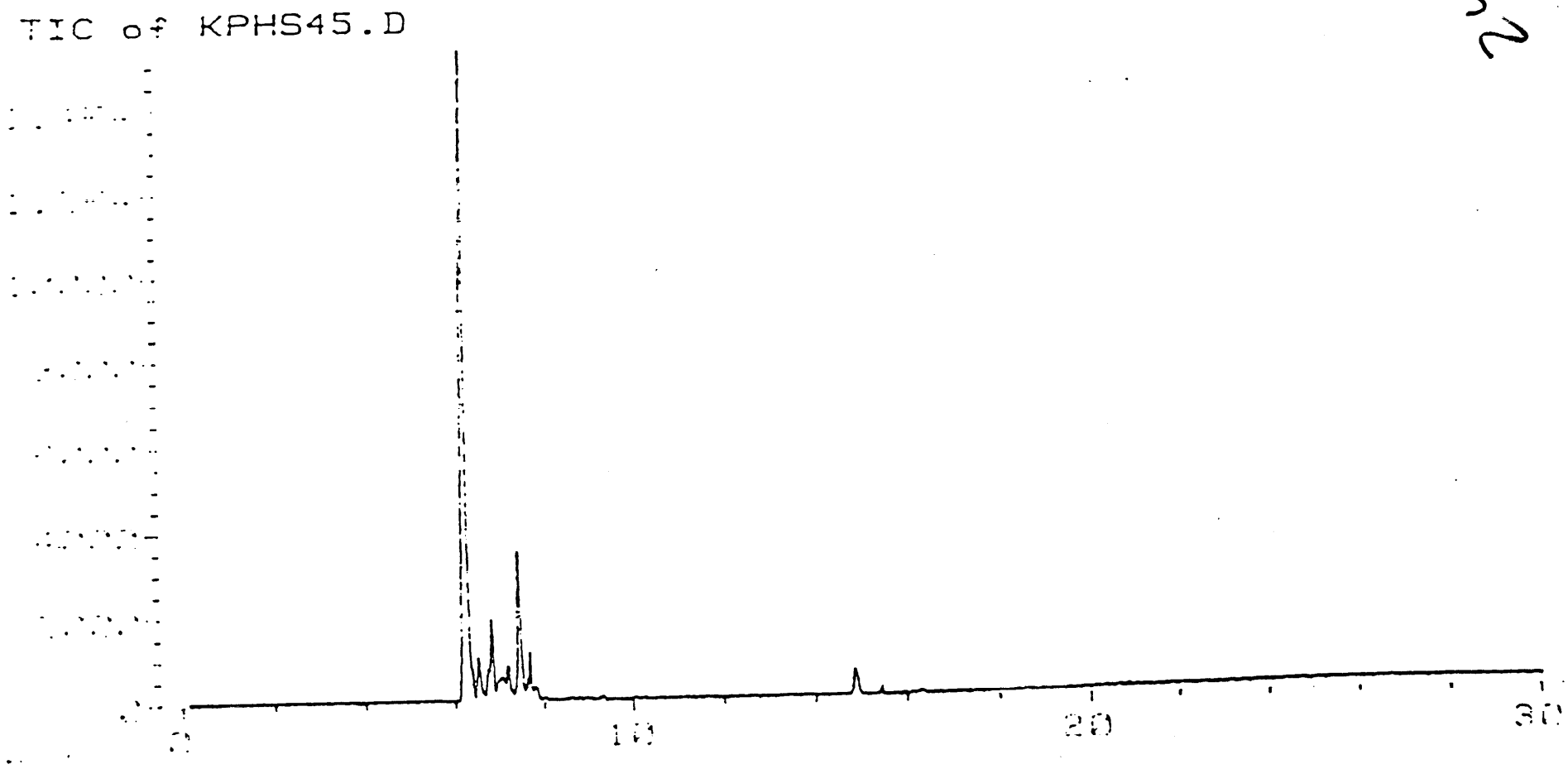


BRONZE VINYL COATED FIBERGLASS

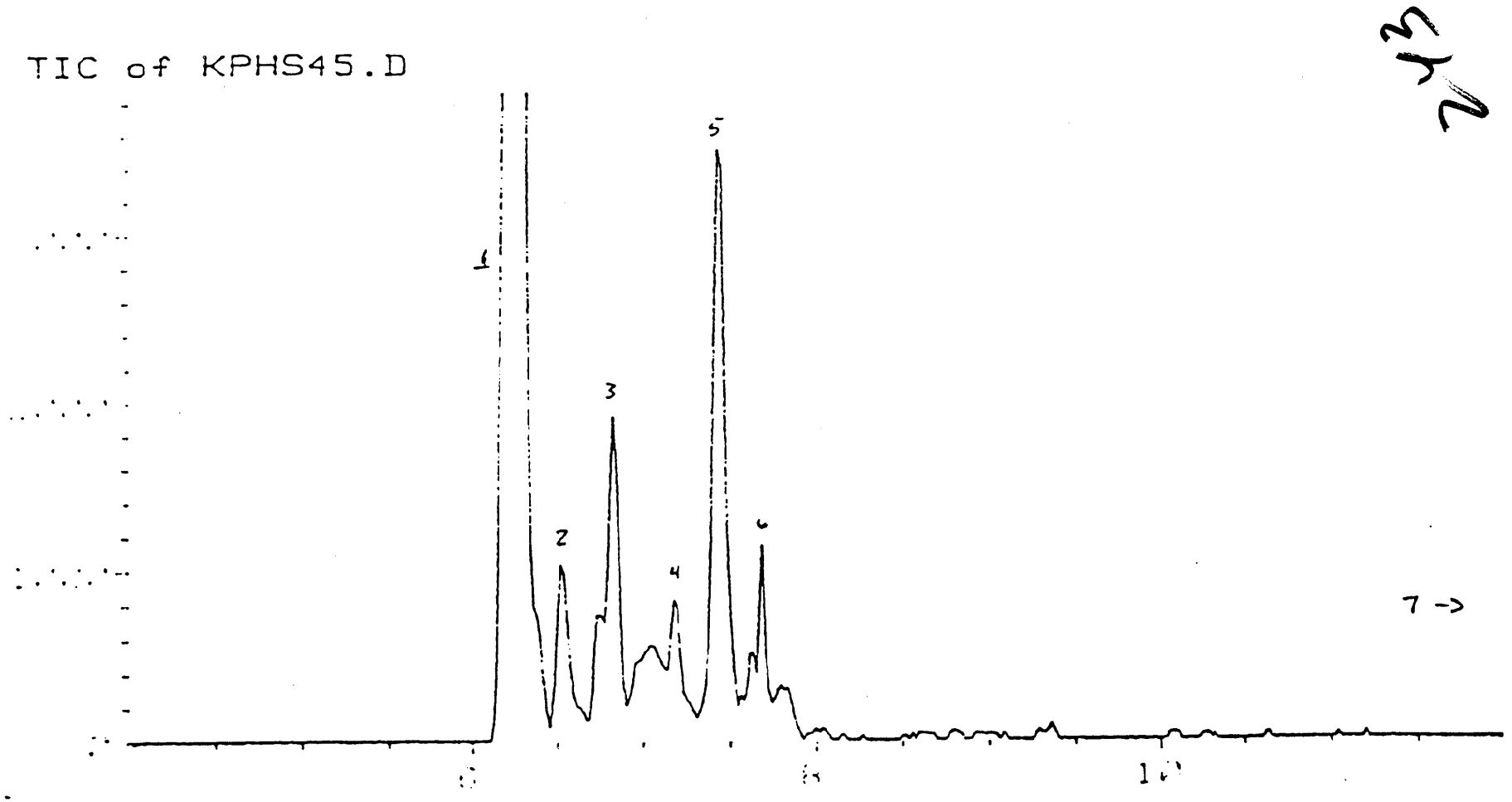
TIC of KPHS44.D



GRAY VINYL COATED FIBERGLASS



GRAY VINYL COATED FIBERGLASS FROM MAILING TUBE


TIC of KPHS45.D
1
2
3
4
5
6
7 ->
10